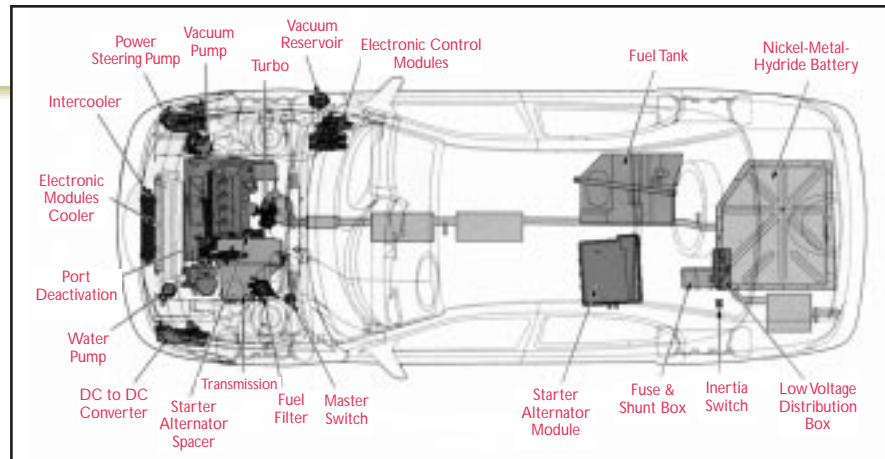




Office of Energy Efficiency
and Renewable Energy

P2000 Hybrid Vehicle



Background

Through a combination of vehicle engineering and advanced propulsion technology, Ford has created the P2000, a hybrid electric vehicle that delivers high fuel economy, low greenhouse gas emissions, and extended driving range. Careful integration of engineering advancements is key to its success. The heart of the vehicle is a direct-injection, aluminum through-bolt assembly (DIATA) diesel engine. The hybrid powertrain uses a small nickel-metal-hydride battery that can recover energy during braking and provide a power boost for acceleration or hill climbing.

Accomplishments

- ◆ Through a joint U.S. Department of Energy/Ford Motor Company program, P2000 hybrid vehicle system was developed. It will surpass the program goal of 50 miles per gallon (mpg).
- ◆ With a standard powertrain, the P2000 weighs 40% less than a comparably sized, conventional vehicle.
- ◆ The 1.2-liter DIATA engine generates 55 kilowatts and has a thermal efficiency of 40%, making it one of the most powerful engines of its kind in the world.
- ◆ The DIATA engine has been integrated with the balance of the hybrid powertrain into a compact and efficient underhood package.
- ◆ The P2000 uses magnesium, titanium, and carbon fiber composites throughout the vehicle body and chassis, where their particular properties can be exploited for weight saving, stiffness, and performance.

Benefits

- ◆ The P2000 hybrid is an important milestone on the road to the 80-mpg goal set by the Partnership for a New Generation of Vehicles.
- ◆ The P2000 provides high fuel economy with driveability and controls that are familiar to customers.
- ◆ Many systems developed for the P2000 can also be applied to conventional vehicles; these include the lightweight vehicle architecture, high-efficiency DIATA engine, compact integrated starter/alternator, and superior aerodynamics.

Future Activities

- ◆ Reduce costs for composite materials, aluminum, and other light metals.
- ◆ Reduce particulate and nitrogen oxide emissions from diesel engines.
- ◆ Improve performance and reduce cost of power electronics and high-power batteries.

Partners in Success

FEV Engine Technology
Ford Motor Company
Milford Fabricating Company
National Renewable Energy Laboratory

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